

WHAT IS CLAIMED IS:

1. A data transfer method, comprising:
receiving a message at a first of a plurality of nodes in a network;
retrieving from a memory forwarding data associated with the message;
5 forwarding data associated with a destination for the message;
if the destination for the message is not a designated distributor, sending the message through a switching fabric to a second of the plurality of nodes in response to the forwarding data;
10 else if the destination for the message is the designated distributor, sending the message and at least a portion of the forwarding data to the designated distributor through the switching fabric; and
sending the message from the designated distributor through the fabric to a plurality of destinations in the network using the forwarding data.
- 15 2. The method of claim 1, wherein the forwarding data comprises a bit mask.
3. The method of claim 1, wherein sending the message to the plurality of destinations comprises one of the group consisting of broadcasting the message to all of the plurality of nodes and broadcasting the message to a designated portion of the plurality of nodes.
- 20 4. The method of claim 1, wherein the switching fabric comprises a non-blocking crossbar architecture.
5. The method of claim 1, wherein the forwarding data comprises a destination identifier and associated data.
6. The method of claim 1, wherein the memory is a content-addressable
30 memory.

7. A data transfer method, comprising:
receiving a message at a first of a plurality of nodes in a network;
retrieving from a content-addressable memory forwarding data associated with
the message, the forwarding data associated with a destination for the message;
5 sending the message and at least a portion of the forwarding data through a
switching fabric to a second of the plurality of nodes in response to the forwarding
data; and

10 if the second of the plurality of nodes is a designated distributor, sending the
message from the designated distributor through the fabric to a plurality of
destinations in the network using the forwarding data without accessing the memory.

8. The method of claim 7, wherein the forwarding data comprises a bit
mask.

15 9. The method of claim 7, wherein sending the message comprises one of
the group consisting of broadcasting the message to all of the plurality of nodes and
broadcasting the message to a designated portion of the plurality of nodes.

20 10. The method of claim 7, wherein the switching fabric comprises a non-
blocking crossbar architecture.

11. A data transfer system, comprising:

a switching fabric; and

a plurality of nodes coupled to the fabric each operable to:

retrieve from a memory forwarding data associated with a received
5 message, the forwarding data associated with a destination for the message;

if the destination for the message is not a designated distributor, send
the message through the fabric to another of the plurality of nodes in response
to the forwarding data; and

else if the destination for the message is the designated distributor,
10 send the message and at least a portion of the forwarding data to the
designated distributor through the fabric; and

a designated distributor coupled to the fabric and operable to send the
message through the fabric to a plurality of destinations in the network using
the forwarding data.

12. The system of claim 11, wherein the forwarding data comprises a bit
15 mask.

13. The system of claim 11, wherein the designated distributor is operable
20 to send the message to the plurality destinations by broadcasting the message to all of
the plurality of nodes or to a designated portion of the plurality of nodes.

14. The system of claim 11, wherein the switching fabric comprises a non-
blocking crossbar architecture.

15. The system of claim 11, wherein the memory is a content-addressable
memory.

16. The system of claim 11, wherein the designated distributor is further
30 operable to store the message in a Synchronous Dynamic Random Access Memory.

17. The system of claim 11, wherein the nodes, the designated distributor, and the fabric are implemented utilizing at lease one field programmable gate array.

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18. Data transfer logic, comprising:

a memory; and

logic coupled to the memory and operable to couple to a switching fabric, the logic comprising a plurality of nodes and a designated distributor node operable to:

5 retrieve forwarding data associated with a received message at one of the plurality of nodes, the forwarding data associated with a destination for the received message;

10 if the destination is not the designated distributor node, send the message to another of the plurality of nodes through the switching fabric in response to the forwarding data;

else if the destination for the message is the designated distributor node, send the message and at least a portion of the forwarding data to the designated distributor node through the switching fabric; and

15 send the message from the designated distributor through the switching fabric to at least a portion of the plurality of nodes using the forwarding data.

19. The logic of claim 18, wherein the forwarding data comprises a bit mask.

20 20. The logic of claim 18, wherein the designated distributor is operable to send the message to the plurality of nodes by broadcasting the message to all of the plurality of nodes or broadcasting the message to a designated portion of the plurality of nodes.

25 21. The logic of claim 18, wherein the switching fabric comprises a non-blocking crossbar architecture.